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“Pictures don’t lie, seeing is believing”: Exploring attitudes to the introduction of pictorial warnings on cigarette packs in Ghana

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ABSTRACT

Purpose: To compare perceptions of text and pictorial warning labels on cigarette packs among Ghanaian smokers and non-smokers, and explore their views on the introduction of pictorial warnings in Ghana.

Methods: Qualitative study involving 12 focus group discussions with 50 smokers and 35 non-smokers aged 15 and over in Kumasi, Ghana. Semi-structured discussion guides alongside visual discussant aids were used to explore the perception, acceptance and potential use of pictorial warning labels in Ghana.

Results: Health warnings combining text and a picture (pictorial) were perceived by both smokers and non-smokers to communicate health messages more effectively than text-only or picture-only warnings. The effect of text-only warnings was considered limited by low levels of literacy, and those of any health warning on the pack by the common practice of single stick sales. Of the six health warnings tested, lung cancer, blindness, stroke and throat and mouth cancer messages were perceived to have the most impact on smoking behaviour, including uptake and quit attempts.

Conclusion: Warning labels combining pictures and text have the potential to reduce smoking uptake, increase quit attempts and reduce smoking appeal among smokers and non-smokers in Ghana.

Measures to prevent single stick sales, or to promote health messages to purchasers of single sticks, are required.

Introduction

Tobacco smoking is the global leading cause of preventable death and the largest long-term challenge to public health in developing countries (WHO, 2013). Smoking currently kills six million people annually and is projected to kill one billion people by the end of the 21st century (WHO, 2013). Most of this disease burden will occur in low and middle-income countries (WHO, 2013) such as those in Sub-Saharan Africa, where smoking prevalence is currently rising (Gilmore, Mckee, Sim & Pomerleau, 2011), particularly among young people (GTYS, 2002), and is likely the result of intensive efforts by tobacco industries to expand into rapidly growing African markets (Twumwine, 2011).

Health warnings on cigarette packs have emerged as an important means of communicating the health risks of tobacco use to the consumer (Hammond, Reid, Dreizen & Boudreau, 2012) and are now required in more than 56 countries (Cunningham 2012). Pictorial warnings (including both text and a picture) covering more than 30% of the pack surface are more likely to be noticed than text-only warnings (Hammond et al., 2006; Hammond, Fong, McDonald, Cameron & Brown, 2003), and are more effective at communicating the health risks, increasing thoughts about health risks (Li & Grigg, 2009; Thrasher, Hammond, Fong, Arillo-Santillan, 2007) and motivating smokers to quit smoking (Hammond, Reid, Dreizen & Boudreau, 2012). Several population-based surveys in Canada, the UK and Australia have also emphasized the importance of pictorial warnings in preventing smoking initiation among young people (O’Hegarty et al., 2006; Thrasher, Hammond, Fong, Arillo-Santillan, 2007; White, Webster, Wakefield, 2008). Pictorial warnings are also likely to be more effective in populations with low literacy rates (FCTC article 11, 2009; Yong et al., 2013), and in low and middle-income countries may represent one of the few sources of information about the health risks of smoking (Yong et al., 2013).

The West African country of Ghana has a population of 25 million, a rapidly growing economy (Central Intelligence Agency, 2013), low literacy rates and rising smoking prevalence among young adults [6.7% for males versus 4.4% for females] (John, Mamudu & Liber, 2012; Mamudu, Veeranki & John, 2013)

and 7.6% in older adults (Yawson, Baddoo, Hagan-Seneadza, Tagoe et al. 2013). Cigarette packs in Ghana currently carry text-only health warnings, in English (Figure 1) (Owusu-Dabo, McNeill, Lewis, Gilmore & Britton, 2010) and as far as the authors are aware there are no studies which have explored views on the introduction of pictorial warnings in Ghana. The aims of the current study were therefore to qualitatively explore (a) the perception and acceptance of text-only, picture-only and pictorial warning labels and (b) the likely influence of text-only, picture-only and pictorial warning labels on initiation and quitting behaviours of Ghanaian smokers and non-smokers.

Methods

Study design and participants

This qualitative focus group study was carried out in Kumasi, an urban city in the Ashanti region of Ghana with a population of 1.7 million (Ghana demographic profile, 2013) between October 2012 and June 2013. To elicit a range of views of male and female smokers and non-smokers, participants were recruited from different locations including schools, hospitals, brothels and abattoirs. Ever-smokers were defined as those who had smoked 100 cigarettes in their lifetime, current smokers as those who reported current regular smoking, and non-smokers as those who did not currently smoke, had not smoked in the last six months and did not intend to smoke in the next six months. Due to the low smoking rates among women in Ghana, brothels were identified as an appropriate recruitment pathway based on communication with key stakeholders such as bar owners and students. A total of 12 focus groups were conducted.

Participants were initially recruited through purposive sampling of smokers and non-smokers identified during consultation and history taking in general practice clinics run at Kwame Nkrumah University of Science and Technology hospital by AS, with further snowball recruitment through asking respondents if they knew other people (smokers and non-smokers) who may wish to participate. Non-smoking groups were mainly identified by a convenience method; direct approaches by AS were also

made to individuals at the selected locations (brothels, abattoirs and schools) who were asked if they would be interested in participating in group discussions about cigarette warning labels. Those who expressed an interest were asked to bring others who would also be willing to participate. The focus groups were split by gender and smoking status to assess similarities and differences in their perceptions of cigarette warning labels. Those who agreed to participate were given an inconvenience allowance of GHC20 (GBP5) to cover travel and other minor expenses. We included individuals aged 15 and above.

Procedure

The authority in charge of the chosen focus group locations was contacted, the study objectives explained, and permission to use their facility requested. Each focus group was arranged by an administrator and took place in a quiet setting at the different chosen locations. The focus groups were moderated by AS with the support of an observer who took note of non-verbal communication and any additional field notes relevant to the study. Demographic data including age, education, qualifications and employment status were collected by questionnaire prior to the start of the discussion. Each focus group began with a general discussion on consent, confidentiality and guidelines for group interviews and then moved on to explore perceptions of general attitudes towards cigarette smoking, views about warning labels, interpretations of text and pictorial warnings, views on impact of text and pictures on smoking behaviour and the rating/grading of different warning labels on their impact on smoking behaviour in terms of smoking uptake and/or quitting. Focus group discussions typically lasted between 30 and 50 minutes and were audio-recorded.

To help facilitate the discussion, cigarette packs were designed by the research team using the colour (olive green) and design format of the Australian pack (Hammond, 2009) and used as visual discussant aids. A total of six different warning messages based on designs already used in the European Union (EU): smoking destroys your lungs, smoking causes throat and mouth cancer, smoking causes

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3 blindness, smoking causes stroke, passive smoking causes severe asthma attacks and smoking
4 destroys your teeth and gums were used. Participants were shown these six messages in a text-only
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7 format (Figure 2), then in a picture-only format (Figure 3), and then finally in a combination of text and
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10 picture (Figure 4). Participants were shown a total of 18 different pack designs.

11 12 13 14 15 **Ethics approval**

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18 Ethics approval was obtained from the Kwame Nkrumah University of Science and Technology Ethics
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20 Committee (CHRPE/AP/219/12).

21 22 23 24 25 **Analysis**

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27 Audio files were transcribed verbatim by AS in the language of the discussion (a mixture of Twi, a local
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29 Ghanaian dialect, and English) and then translated to English with support from native Twi speakers,
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31 using back translation where necessary to ensure that meaning and content were accurately reflected.
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33 Data were analysed using the framework approach (Ritchie & Spencer, 1994) and following the
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35 methods suggested by Smith and colleagues (Smith & Fith, 2011). This approach allowed the different
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37 phenomena within these cross-sectional descriptive data to be captured and facilitated the
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39 exploration of potential differences in views between smokers and non-smokers and between
40
41 genders. To aid familiarisation, all 12 transcripts were read and re-read by AS and LLJ, with printed
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43 transcripts being annotated line-by-line where codes and categories were identified. Each line/phrase
44
45 was then charted in a coding matrix using Microsoft Excel™. Transcripts were then revisited and the
46
47 codes and categories grouped into appropriate themes and sub-themes, from which a coding index
48
49 was developed to synthesise and organise the data set and to aid interpretation. Finally, each theme
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51 was charted in a summary framework, with direct extracts included to allow exploration of the core
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53 themes and to ensure that interpretation of the emerging concepts remained grounded in the
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participants' descriptions. Disagreements in coding and theme interpretation were resolved via discussion between the researchers.

Results

From a total of 97 smokers and non-smokers who were identified and contacted, 85 (88%) comprising 50 smokers (34 males) and 35 non-smokers (27 males) with an average age of 38 years participated in a group discussion. We carried out 12 focus groups, comprising seven of smokers and five of non-smokers (see Table 1). The majority (59%) of participants had primary level education and were of low occupational status including butchers, street vendors and sex workers (82%).

Three overarching themes were identified and interpreted within the data: (1) smoking rationale and awareness, (2) views on current Ghanaian warnings, and (3) views on European Union warnings. Each of these themes and associated sub-themes are described below and illustrated with quotes in Boxes 1-3.

1. Smoking rationale and awareness (see Box 1 for illustrative quotes):

All groups of smokers, irrespective of age and gender, recognised addiction as the main reason for continuing to smoke, over-riding their underlying desire to quit smoking. The influence of peers was considered an important driver for the initiation and maintenance of smoking, and young adult male smokers highlighted that smoking was an important part of their identity that allowed them to be an accepted member of their peer group.

2. Views on current Ghanaian warnings (see Box 2 for illustrative quotes)

Awareness: All smokers were aware of current health warnings on Ghanaian cigarette packs, though non-smokers were more able to recall the warnings. Female non-smokers perceived smokers to be poorly educated, with low literacy and hence unlikely to notice and understand the warnings. Adult male non-smokers thought that the warnings would not prevent initiation of smoking. The most commonly recalled current warning messages were '*smoking causes cancer*' and '*smoking kills*'.

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3 *Avoidance:* Male smokers reported that they actively avoided taking notice of the warnings on
4 cigarette packs so as to continue to rationalise their smoking behaviour. Desire to smoke was
5 influenced by the smoker's mood at that specific time, regardless of warnings. Adult female smokers
6 noticed the warnings but did not register their content.
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11 *Influence on behaviour:* Young adult male smokers reported that current warnings did not influence
12 their smoking habit, being over-ridden by cravings and desire to smoke. Non-smokers were of the
13 view that current warnings were not effective enough and that most smokers would smoke regardless
14 due to addiction and coping mechanisms. For many smokers, the common practice of single stick
15 purchases prevented contact with the warning messages.
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22 23 **3. Views on European Union warnings (see Box 3 for illustrative quotes)**

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25 *Text-only:* General perceptions of the text-only EU warnings were that they were similar to those
26 already in use in Ghana and unlikely to have an impact, particularly for those with low literacy. Among
27 male smokers, the lung cancer, stroke and blindness text-only messages were considered the most
28 effective. Messages featuring teeth and gums, and passive smoking were considered least effective
29 because a dentist could always fix affected teeth, and effects of passive smoking were not considered
30 to be important.
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34 *Picture-only messages:* Picture-only warnings were regarded by all groups to be more effective;
35 considered to be novel, serious, informative, emotive, and to show 'real effect'; and often provoking
36 fear and disbelief. The throat and mouth cancer image had the greatest impact, and with the
37 exception of adult female non-smokers, the teeth and gums image the least. Adult female smokers
38 saw the picture-only warnings as more effective across all literacy levels. Adult male non-smokers felt
39 that the packs carrying picture warnings would not look good in public, and therefore that they would
40 not want to be seen using such a pack.
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54 *Text and pictures:* The combination of text and picture into one health warning was felt to be the most
55 comprehensive warning message on packs, regardless of literacy level. Most groups were of the view
56 that smokers, particularly those with low literacy, would understand either the text or the picture, if
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not both. Although the picture and text warnings reiterated health messages that some participants were already aware of, the addition of pictures bolstered interest, attention and clarity of the health message. Young adult male smokers suggested that text and picture warnings would prevent young adults from smoking initiation and would enable them to make a conscious and informed choice about smoking.

Overall views: Smokers and non-smokers believed that combined picture and text warnings were likely to have the biggest impact on initiation and quitting behaviour, and perceived that they may be particularly effective for those with low literacy. There was strong support for their introduction in Ghana. Adult male non-smokers suggested that pack inserts with additional pictures might also be helpful, whilst adult male smokers suggested that since many smokers purchase cigarettes singly, the images should be printed on the cigarettes.

Discussion

This study is one of the first to explore views on the introduction of pictorial warning labels among smokers and non-smokers in a developing country. The results demonstrate that current Ghanaian text-only warnings alone are considered ineffective in communicating the health risks of smoking, and that there was strong support for the introduction of pictorial warnings in Ghana. Our study suggests that pictorial warnings on cigarette packs may be effective in reinforcing negative perceptions of smoking as participants referred to these pack designs using language such as ‘serious’ and showing the ‘real effect’, and non-smokers were reluctant to be seen in public with packs carrying health warnings. Pictorial warnings were also felt to be more effective among smokers with low literacy. However, the effect of health warnings was acknowledged to be diminished by the common practice of selling and purchasing cigarettes as single sticks.

Mauritius was the first African country to introduce pictorial warnings, and did so in 2009 (ITC Project, 2012). Experience there indicates that pictorial warnings are more effective than text only warnings in communicating the health effects of smoking (ITC Project, 2012). Our findings were similar for both

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3 smokers and non-smokers who reported that pictorial warnings influenced thoughts about quitting
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5 and cutting down the number of cigarettes among established smokers. Our findings are also
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7 consistent with other qualitative studies (BRC Marketing & Social research, 2004; Decima Research,
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9 2009; Les Etudes de Marche Createc, 2006) demonstrating that pictorial warnings on cigarette packs
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11 are perceived by adult smokers and non-smokers to be more effective and associated with greater
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13 impact than text-only warnings. Evidence for the greater potential impact of pictorial warnings has
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15 also been shown in experimental studies, including a U.S. study that found that pictorial warnings
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17 were associated with greater negative emotions and that these emotions were associated with more
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19 negative attitudes toward smoking (Peters et al., 2007).
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23 Pictorial warnings are a potential key medium for communicating the health effects of smoking to
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25 existing and new smokers in Ghana. Communication with vulnerable young people is particularly
26
27 important as tobacco use is typically initiated in adolescence in Ghana (Mamudu, Veeranki & John,
28
29 2013) and similar to many other developing countries, the tobacco industry has targeted adolescents
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31 with various marketing and promotional activities (WHO, 1999). According to Mamudu et al. (2013)
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33 approximately 15% of Ghanaian students have either acquired tobacco branded merchandise or been
34
35 offered a free cigarette, suggesting that the tobacco industry is trying to influence and encourage
36
37 uptake of smoking in young people in Ghana. Young adult smokers in our study highlighted the
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39 influence of peers as an important driver for smoking initiation as it gave them a sense of belonging.
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41 Evidence from a longitudinal evaluation of pictorial warnings among Australian school children found
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43 that students were more likely to read, attend to, think about and talk about health warnings after the
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45 implementation of pictorial warnings in 2006 (White, Webster & Wakefield, 2008). Findings from
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47 national surveys of Canadian youth also suggest similar levels of support for pictorial warnings and
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49 self-reported impact (Koval, Aubut, Pederson, O'Hegarty & Chan, 2005).
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53 Pictorial warnings may be particularly important in communicating health information to populations
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55 with lower literacy rates (Yong et al., 2013). Most African countries have literacy rates between 27 and
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57 65% (World factsheet, 2013), and in Ghana it is higher than average at 72% (World factsheet, 2013).
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In addition, smoking in many developing nations is concentrated in groups with low levels of education (World factsheet, 2013). According to a recent study by John et al. (2012) tobacco use in Ghana was significantly associated with poverty, low education, being a parent and alcohol use. Smokers in Ghana are thus particularly unlikely to be able to read and understand written health warnings. It was clear that combining pictures and text facilitated understanding of the key health messages even when literacy was low. However, there is a common practice in Ghana of purchasing single sticks, rather than pack of cigarettes, thus many smokers who are poor and with low literacy skills will not be exposed to the health warning label on packs, irrespective of whether they are text or pictorial in nature. Male smokers in our study suggested that the solution to this problem was to print health warnings on individual cigarettes.

Of the six different warning labels presented as visual aids in the focus group discussions for the current study (Figure 1), those depicting lung cancer, blindness, stroke, and throat and mouth cancer were rated as most effective by most groups of smokers and non-smokers. These findings were consistent across all groups especially among male smokers and female non-smokers. Some of these warnings were also associated with fear and disbelief among participants who sought clarification from the moderator as to the authenticity of the association between smoking and its effects especially blindness and stroke. Research has consistently demonstrated that warnings with fear-arousing content are rated more highly by smokers and non-smokers (Sweet, Willis, Ashida & Westman, 2003). Negative emotions, such as fear, have been hypothesized to mediate the effectiveness of health warnings (Sweet, Willis, Ashida & Westman, 2003) and have been associated with increases in key outcomes, such as intentions to quit, thinking about health risks and cessation behavior (Kees, Burton, Andrews & Kozup, 2010). In our study, a “fear” response was articulated on a number of occasions, particularly in relation to warning messages with blindness, stroke and throat and mouth cancer. In contrast with the substantial evidence based on the general effectiveness of pictorial warning labels, there is a paucity of research on the most effective individual images and message themes. Our study participants were of the view that picture and text warnings for use in

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3 Ghana need to be context and country specific. The pictorial component of health warnings is the
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5 most important determinant of the general salience and impact of health warnings and is responsible
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7 for the emotional reactions and positive evaluations of health warnings (Hammond, 2011). The
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9 proposed set of warning labels tested in the current study, of which four were salient, have the
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11 potential to be the starting point from which pictorial warning labels could be considered for
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13 implementation on cigarette packs in Ghana.
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15 16 17 **Limitations**

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19 Limitations of the study include our requirement for participants to rate a series of warnings after
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21 viewing the warnings for only a brief amount of time. Although necessary for the experimental design,
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23 'real life' exposure to warnings is more repeated and sustained and we are unable to determine
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25 whether our findings reflect the impact of this more sustained exposure. In addition, although the
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27 focus groups were heterogeneous, an increase in the number of focus groups, particularly for adult
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29 female smokers, would have facilitated a thicker and richer qualitative data set.
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32 33 34 35 **Conclusions and recommendations**

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37 This study extends our understanding of the perceived effectiveness of pictorial warnings labels. Our
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39 study population recommends the use of pictorial warnings on cigarette packs in Ghana given the low
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41 literacy rates of smokers and their effectiveness compared to text-only warnings. Pictorial warnings
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43 have the potential to reduce smoking uptake, increase quit attempts and reduce the appeal to
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45 smoking among adult and young adult smokers and non-smokers. Given the significant health
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47 consequences of smoking among young people, the most vulnerable group in Ghana, it is timely to
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49 examine whether more diverse warnings could deter initiation of smoking and prompt cessation more
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51 effectively among this demographic population. The study also finds that the effect of all health
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53 warnings is significantly undermined by the practice of selling cigarettes as single sticks, and as this is
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likely in practice to be difficult to prevent in low income populations, raises the need to consider printing health warnings on individual cigarettes.

Declaration of interests

None declared

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Table 1. Focus group participant summary

Smoking Status/Gender	Number of potential participants approached	Number of participants recruited (%)	Mean age (range)	Number of focus groups/location
Adult male smokers	24	20 (83)	38 (22-64 years)	3 (Abattoirs, hospitals)
Young adult male smokers	15	14 (93)	17(15-21 years)	2 (Schools)
Adult male non-smokers	23	21 (91)	35 (22-52 years)	3 (Hospitals, schools)
Adult female smokers	18	16 (89)	21 (18-25 years)	2 (Brothels)
Adult female non-smokers	17	14 (82)	38 (25-39 years)	2 (Hospitals, schools)

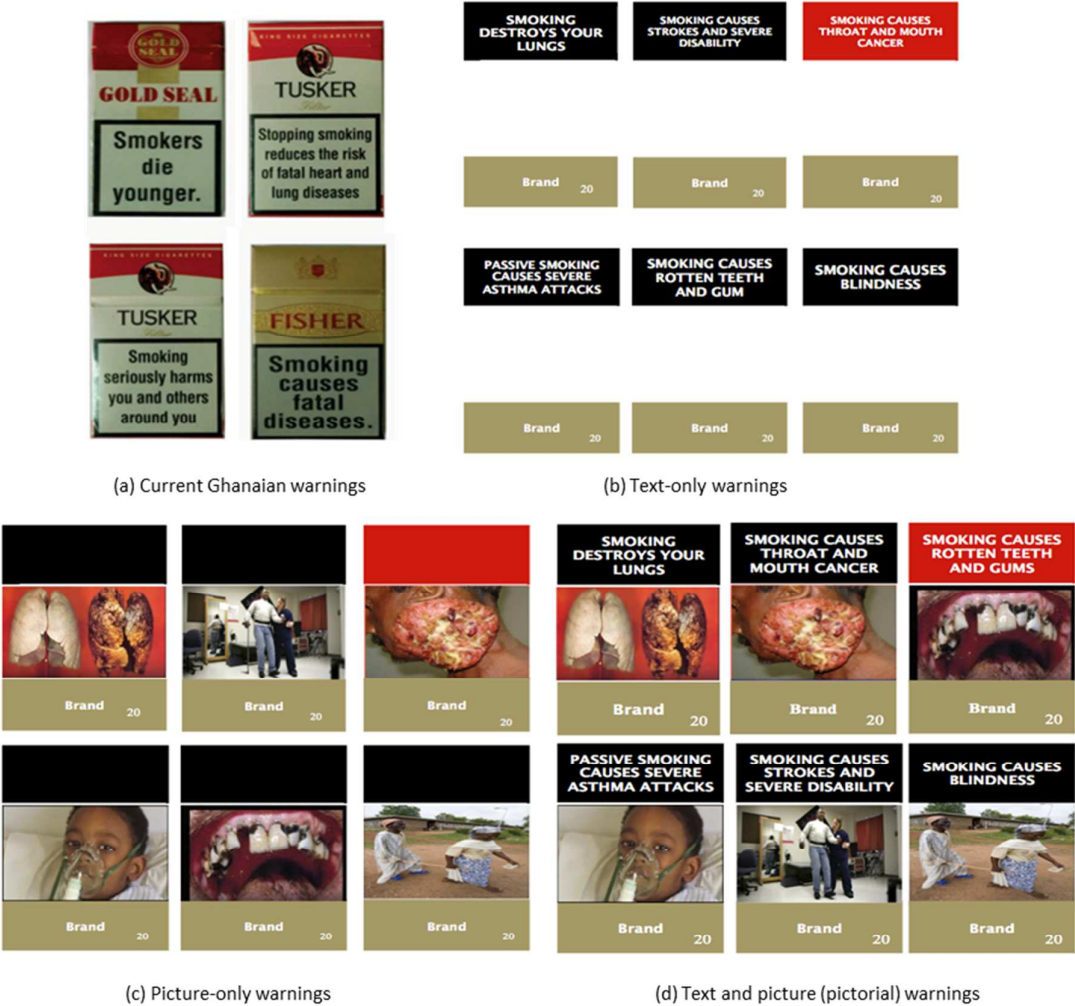


Figure 1. Current and test warning messages used as visual discussant aids in the focus group discussions

Addiction

"Smoking is addictive and you will smoke if your friend's smoke, we all know it is bad and it can make you sick, the person who smokes is used to it and so they don't mind but if you don't smoke it can cause problems" (adult male non-smoker)

Influence

"We know it is bad, but you go to a funeral or party, people are smoking and you want to smoke also, it looks nice when you see them smoking so you just want to do some" (young adult female smoker)

Perceptions

"There is nothing good about it...I don't know why people even smoke. It makes you sick so why smoke?" (adult male non-smoker)

Knowledge

"I know there are many things it can cause such as cancer, bad breath, bad teeth" (young adult male smoker)

Box 1. Smoking Rationale and Awareness

Awareness

“For me when I smoke although I see them [warning label] I don’t really read them, some are difficult to read so I don’t bother, but I know the messages mean smoking is bad for your health” (adult male smoker)

Avoidance

“I also don’t notice any of them so I don’t know what it reads, I just don’t look at them as long as I get what’s inside” (adult male smoker)

Influence on behaviour

“If these warnings could make me stop smoking I would have done this long time, the cigarette makes me happy so why would I stop smoking because I am reading something on the pack?” (adult male smoker)

“I sometimes don’t buy the packs...only the sticks so I don’t see them anyways!” (young adult male smoker)

Box 2. Current Ghanaian Warnings

Text-only

"Messages like these [text-only warning] are already in the system but I don't know if they are helpful in smoking habits. I mean do they influence people at all?" (adult male non-smoker)

Picture-only

"Seeing is believing. I think this is more serious, they make me now wonder more about my smoking habit" (adult male smoker)

"I think if they did pictures like this on the pack here [in Ghana] I don't think anyone would buy cigarettes to smoke because it would make you think more. Look at the picture and you can see the actual thing yourself so you will believe it more than when it is just written so why would you buy it with such a picture on it?" (adult male non-smoker)

Text and pictures

"These packs [text and picture warning] are the best they give you the complete information, those who have gone to school and those who have not can all understand it" (young adult male smoker)

Overall views

"These are good ideas already, maybe putting the picture on the cigarette sticks would also help?" (adult male smoker)

Box 3. Views on European Union Warnings